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REPORT ADDENDUM

ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE SAN DIEGO FAIRY SHRIMP

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ADDENDUM TO SAN DIEGO FAIRY SHRIMP DEA

INTRODUCTION AND BACKGROUND

This addendum supplements the Draft Economic Analysis of Critical Habitat Designation for the San Diego Fairy Shrimp (hereafter “SDFS DEA”). The SDFS DEA was prepared by Economic & Planning Systems (EPS), under subcontract to Industrial Economics, (IEc), for the U.S. Fish and Wildlife Service and made available to the public in April 2004. This addendum assesses the potential implications on the key findings of the SDFS DEA from the following:

1. **Changes in type of economic impacts reported:** In response to a series of recent court rulings, the Service continues to refine the framework for evaluating the economic impacts of critical habitat (i.e., whether to report fully co-extensive costs or costs due solely to the designation of critical habitat). This addendum isolates costs reported in the SDFS DEA resulting solely from the critical habitat designation consistent with the Service’s current framework.
2. **Changes in legal parameters:** A number of court rulings issued since the completion of the SDFS DEA may affect the type of habitat conservation activities undertaken as a result of designation. This addendum considers the implications of these court rulings on the SDFS DEA.
3. **Changes in baseline regulations:** A baseline regulation, the Southern Orange County Habitat Conservation Plan/Natural Communities Conservation Program (HCP/NCCP), has been approved since completion of the DEA. This addendum considers the implications of this regulatory change on the impact estimates reported in the SDFS DEA.
4. **Changes in key economic and demographic information:** More up-to-date demographic, market and other economic data have become available since the completion of the SDFS DEA. This addendum considers the implications of the most recent economic data available on the impact estimates reported in the SDFS DEA.

It is important to note that this addendum does not recreate the analysis provided in the DEA or re-calculate all the results. Rather it is designed to assess the primary implications of the changes described above. In many cases, the discussion is qualitative, indicating whether a factor is likely to significantly increase or decrease the economic costs reported in the DEA. To the extent necessary data are readily available, this analysis estimates the relative magnitude of potential changes in expected economic costs within affected critical habitat units. The discussion relies on the proposed critical habitat designation (CHD) boundaries described in the DEA.

Finally, this Addendum does not address information, data or issues raised in the public comments to the SDFS DEA. These issues are addressed in the Response to Comments to the DEA.

SUMMARY OF FINDINGS

Table 1 summarizes the discrete effect of the key factors described above on the economic cost estimates reported in the SDFS DEA (all costs are in real 2002 dollars so as to be directly comparable to the DEA). As shown, in some cases actual quantitative estimates of the potential change in economic costs are provided whereas in others the expected direction of the impact is indicated. It should be noted that each factor has been evaluated independently or in isolation of the others and thus the estimates cannot be added by category (i.e., across columns). A complete analysis of the cumulative impact of all of these factors described above is outside the scope of this Addendum. A summary of the key finding by category is provided below:

- 1. Changes in type of economic impacts reported:** As shown in the third column of **Table 1**, about 44 percent of the DEA costs, or about \$23 million, are estimated to be attributable to designation only. This is because Federal action agencies already routinely initiate consultations with the Service for projects that potentially affect vernal pools, the habitat for SDFS, as well as linked watersheds. However, critical habitat may provide new information to action agencies about the extent or range of linked watershed areas, resulting in consultations and/or project modifications that may not have occurred in the absence of designation. Based on conversations with the Service, this Addendum estimates that the designation will provide new information to action agencies for about 44 percent of the proposed critical habitat.
- 2. Changes in legal parameters:** As shown in the fourth and fifth column of **Table 1**, two court decisions issued since publication of the DEA, the “Pinchot Decision” and the “Rapanos Decision” have the potential to change the economic cost estimates therein. First, to the extent that the “Pinchot Decision” results in additional “within critical habitat” conservation above that required by existing HCPs that provide baseline protection, additional project modification costs not quantified in the DEA may be incurred. Second, the “Rapanos Decision” may reduce the cost of designation by limiting the scope of “waters of the U.S”, the primary Federal nexus assumed for private development. However, given the newness of these decisions, their implications are difficult to quantify at this time.
- 3. Changes in baseline regulations:** As shown in the sixth column of **Table 1**, the baseline regulatory context for the SDFS remains largely unchanged since publication of the DEA. Although the Southern Orange County HCP/NCCP,

Table 1
Summary of Potential Changes in DEA Economic Impact Estimates (in Real 2002\$)*
Addendum to SDFS DEA; EPS #17077

Region / Land Use Activity	DEA Cost Estimate ¹	Type of Economic Impacts	Impact from Change in Legal Parameters*		Impact From Change in Baseline (i.e., new HCPs)*	Impact from Change in Economic Data*	
		DEA Costs Due To CHD Only	Pinchot Decision ²	Rapanos Decision		Up-Dated Market Data	Airport Measure
L.A. Basin/Orange							
Private land development	\$15,211,998	\$6,693,000	↔ / ↑	↓	↔	\$2,438,000	
Other ³	<u>\$4,136</u>	<u>\$4,136</u>	↔ / ↑	↔	↔		
Subtotal	\$15,216,134	\$6,697,136	↔ / ↑	↓	↔		
SD North Coastal Mesa							
Water projects	\$369	0	↔ / ↑	↔	↔		
Other ³	<u>\$10,050</u>	<u>\$10,050</u>	↔ / ↑	↔	↔		
Subtotal	\$10,419	\$10,050	↔ / ↑	↔	↔		
SD Inland Valley							
Private land development	\$37,114,948	\$16,331,000	↔ / ↑	↓	↔	\$2,790,000	
Airport Construction	\$309,623	\$0	↔ / ↑	↔	↔		\$309,623
Water projects	\$3,695	0	↔ / ↑	↔	↔		
Other ³	<u>\$34,476</u>	<u>\$34,476</u>	↔ / ↑	↔	↔		
Subtotal	\$37,462,742	\$16,365,476	↔ / ↑	↓	↔		
SD Central Coastal Mesa							
Private land development	\$795	\$350	↔ / ↑	↓	↔		
Water projects	\$185	\$0	↔ / ↑	↔	↔		
Other ³	<u>\$2,049</u>	<u>\$2,049</u>	↔ / ↑	↔	↔		
Subtotal	\$3,028	\$2,399	↔ / ↑	↓	↔		
SD Southern Coastal Mesa							
Private land development	\$106,619	\$46,912	↔ / ↑	↓	↔		
Airport Construction	\$14,861	0	↔ / ↑	↔	↔		\$14,861
Road Construction	\$208,624	0	↔ / ↑	↔	↔		
Military activities	\$0	0	↔ / ↑	↔	↔		
Water projects	\$1,391	0	↔ / ↑	↔	↔		
Other ³	<u>\$18,715</u>	<u>\$18,715</u>	↔ / ↑	↔	↔		
Subtotal	\$350,210	\$65,627	↔ / ↑	↔	↔		
TOTAL, All Regions	\$53,042,532	\$23,140,688	↑	↓	↔	\$5,228,000	\$324,484

* Positive numbers indicate the potential increase in economic costs from those reported in the Fairy Shrimp DEA. Negative numbers indicate the opposite. Columns are not additive.

↔ indicates factor is estimated to have a negligible impact on the economic impacts reported in Fairy Shrimp DEA.

↓ indicates factor is estimated to reduce the economic impacts reported in Fairy Shrimp DEA by an unknown amount.

↑ indicates factor is estimated to increase the economic impacts reported in Fairy Shrimp DEA by an unknown amount.

(1) For detailed summary of economic cost estimates in DEA see **Table A-1**.

(2) Dollar estimates assume that project modifications included in HCPs are equivalent to those associated with CHD.

If this is not the case the Pinchot decision will likely result in additional costs.

(3) Consists of indirect costs associated with implementation of the California Environmental Quality Act (CEQA).

which overlaps Unit 1, has been completed and approved with the permit issued in January 2007, the SDFS habitat in this unit was already protected due to pre-existing regulations and dedications.

4. **Changes in key economic and market data:** The last two columns of **Table 1** summarize the impact of updated economic and market data on the DEA cost impacts. As shown, using more up-to-date real estate market data would increase total DEA costs by about \$5 million, or by about 10 percent. However, this estimate represents a snapshot based on the most current market conditions for which data is available, a period marked by a relatively robust residential real estate market. In addition, based on voter approval, San Diego will not relocate its existing airport to a location that may contain SDFS habitat, reducing the DEA cost estimate by about \$325,000.

ECONOMIC IMPACTS REPORTED

The current practice of the Service in its economic analysis of proposed critical habitat regulations is to estimate the impacts occurring as a result of baseline regulations and then estimate the impacts that are incremental to that baseline (i.e., impacts caused solely by the designation of critical habitat). This approach differs from the framework applied in the SDFS DEA, which discussed all non-section 7 baseline protections qualitatively and then estimated the costs of all section 7 consultations, regardless of whether the projected impacts result from the listing of the species (i.e., co-extensive impacts) or are attributable solely to the designation, as well as the indirect effects of the regulation. Specifically, consultations with the Service resulting from the listing of the species, or project modifications meant specifically to protect the species as opposed to its habitat, may occur even in the absence of critical habitat (CH). In other words, the SDFS DEA does not disaggregate between costs attributable to the listing from those attributable to solely to CH, as described in Chapter II.

“In an effort to ensure that this economic analysis complies with the instructions of the 10th Circuit as well as to ensure that no costs of the proposed designation are omitted, the potential effects associated with all section 7 impacts in or near proposed CH are fully considered. In doing so, the analysis ensures that any critical habitat impacts that are co-extensive with the listing of the species are not overlooked.”¹

In accordance with the new guidance from the Service, this section describes those economic costs estimated in the SDFS DEA that are attributable to CH rather than the listing per se. Two general categories have been identified, direct consultation costs and indirect costs, as described below.

¹ See page 24 of the SDFS DEA.

DIRECT CONSULTATION COSTS

Upon the listing of a species, section 7(a)(2) of the Act requires Federal agencies to consult with the Service in order to ensure that activities they fund, authorize, permit, or carry out are not likely to jeopardize the continued existence of the species. Thus, if a project or land use activity has a Federal nexus, action agencies must initiate consultations with the Service if they suspect the proposed actions may affect a listed species, even if critical habitat has not been designated. For the SDFS, there may be cases or locations in which the designation will provide new information to Federal action agencies that was not available from the listing, as described below.

As described in the DEA, the SDFS is a small aquatic crustacean restricted to shallow vernal pools in southern California. The proposed Rule states that the vernal pools included in the SDFS designation are 100 percent occupied. Given that vernal pools are widely recognized by Federal, State, and local officials in California as a unique habitat type, action agencies routinely initiate consultations with the Service to ensure projects that they fund, authorize, permit, or carry out in or around vernal pools comply with section 7, according to the Service. Thus, projects that may affect SDFS vernal pools will likely to lead to consultations and corresponding to project modifications even in the absence of designation.

Although the vernal pools included in the SDFS designation are assumed to be 100 percent occupied, the designation also includes “non-wetted” upland areas that encompass the watersheds vital to the viability of vernal pools and thus the SDFS. During a section 7 consultation, the Service will seek to protect both the vernal pools and corresponding watershed even in the absence of designation. However, critical habitat may provide new information to action agencies about the extent or range of these corresponding upland watershed areas, resulting in consultations and/or project modifications that may not have occurred in the absence of designation. For example, the designation may lead action agencies to consult on more projects located in “non-wetted” upland areas that do not directly impinge on SDFS vernal pools than they would have due to the listing alone.

According to the Service, Federal action agencies generally understand that both vernal pools and their corresponding watersheds represent sensitive habitat that require protection. However, the precise boundaries of a watershed can be ambiguous and vary on a case-by-case basis. The SDFS DEA assumed that each wetted acre of pool contains an average of about eight acres of watershed in upland areas that will also require protection. The cost calculations also assumed that the Service would ask applicants for 100 percent avoidance of both vernal pools and uplands.

Based on discussions with the Service, as a conservative estimate (e.g., more likely to over-state than understate the costs attributable to designation) this Addendum assumes that the designation provides new information to action agencies for about 50 percent of the upland areas. In other words, but for designation, action agencies may not have initiated consultation with the Service regarding the SDFS in 50 percent of “non-wetted”

habitat. Assuming one acre of wetted pool contains an average of about eight acres of watershed, then approximately 44 percent of the total designation area $((1 + 8) / (50\% * 8) = 44\%)$ provides new information to action agencies about the need to consult. Given that the DEA assumed 100 percent avoidance of both vernal pools and uplands, approximately 44 percent of total project consultation and modification costs would be attributable to the designation.

Note that this approach assumes that project modifications required as a result of the jeopardy standard are identical to project modifications resulting from the adverse modification standard. As we discuss later in this Addendum, these assumptions may no longer be valid in light of the recent Gifford Pinchot court ruling.

INDIRECT COSTS

The designation may, under certain circumstances, affect actions that do not have a Federal nexus and thus are not subject to the provisions of section 7 under the Act. These effects often do not stem directly from the listing but indirectly from designation and thus their cost should be attributed as such. The SDFS DEA quantifies the economic costs associated with several types of such indirect effects as described further below.

Creation of HCPs

In cases in which development of one or more HCPs can be documented as being precipitated by CHD (i.e., to avoid designation or to reduce the costs of the designation), the costs of development of the HCP and the added costs of management imposed by the HCP should be attributable solely to the designation rather than the listing. The SDFS DEA discussed this possibility qualitatively but did not quantify the economic impact, if any. In addition, existing HCPs may face some additional administrative costs which would be attributable to the designation, as quantified in the SDFS DEA.

State and Local Laws

As noted in the DEA, under certain circumstances, CHD may provide new information to a community about the sensitive ecological nature of a geographic region, potentially triggering additional economic impacts under other State or local laws. For example, CHD can have an indirect effect on the requirements of the California Environmental Quality Act (CEQA). In some cases, applicants who were "categorically exempt" from preparing an Environmental Impact Report under CEQA may no longer be exempt once critical habitat is designated. In cases where the designation triggers the CEQA significance test or results in a reduction of categorically exempt activities, associated costs are considered to be an indirect effect and attributable solely to the designation. The economic costs of additional CEQA related impacts are estimated in the SDFS DEA and should be attributable to the designation.

Time Delays and Regulatory Uncertainty

Two other types of indirect costs estimated in the DEA include costs from project delays associated with the consultation process or compliance with other regulations or loss in property values because of regulatory uncertainty and/or public perceptions regarding the effects of critical habitat. The costs of regulatory delay estimated in the DEA should be attributable to the designation. The costs because of regulatory uncertainty are discussed but not estimated in the SDFS DEA.

LEGAL ISSUES

This section discusses the implications of several court decisions issued since publication of the SDFS DEA on the economic costs described therein.

GIFFORD PINCHOT TASK FORCE DECISION

On August 6, 2004, the Ninth Circuit Court of Appeals rendered a decision in the Gifford Pinchot Task Force v. US Fish and Wildlife Service finding that the Service's regulatory definition of "destruction or adverse modification" of critical habitat is contrary to law. Subsequent to this decision, the Acting Director of the Service released a memorandum on December 9, 2004 providing interim guidance for adverse modification determinations. This decision and the subsequent guidance may have implications on the type of habitat conservation activities undertaken as a result of designation and thus on the economic cost estimates provided in the SDFS DEA.

The Directors guidance stated that "conservation activities (e.g., management, mitigation, etc.) outside of critical habitat should not be considered when evaluating effects to critical habitat."² This guidance does not affect the costs calculated in the SDFS DEA because the DEA assumed 100 percent on-site avoidance. However, to the extent that the Pinchot Decision results in additional "within critical habitat" conservation above that required by existing HCPs that are assumed to provide baseline protection for the SDFS, additional project modification costs not quantified in the DEA may be incurred. Given its newness, the implications of the Pinchot Decision are still unclear and this Addendum does not attempt to quantify the cost associated with additional project modifications, if any, that might result.

CLEAN WATER ACT RULINGS

Based on input from the Service and the development community, as well as a review of historical section 7 consultations involving the SDFS, the DEA assumed that the primary

² See, "Application of the 'Destruction or adverse Modification' Standard under Section 7(a)(2) of the Endangered Species Act." December 9th 2004 memorandum from U.S. Department of Interiors, Acting Director. FWS/AES/DCHRS/019634

Federal nexus for future private development activities is the issuance of section 404(b) permits by the U.S. Army Corp of Engineers (USACE). Under section 404(b) of the Clean Water Act, the USACE regulates development in jurisdictional “waters of the U.S.,” which potentially encapsulate a large amount of future development.

Since publication of the DEA, the U.S. Supreme Court has issued rulings which address jurisdiction over waters of the U.S. under the Clean Water Act. Specifically, the Supreme Court’s ruling in June, 2006 in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (generally referred to as “*Rapanos*”), and subsequent guidelines issues by the USACE and the U.S. Environmental Protection Agency, appears to have scaled back the type of waters that fall under the jurisdiction of these agencies. However, given that the Supreme Court decision in June 2007 and subsequent guidance issued in June 2007 are relatively recent, their practical implications are still unclear.

The potential for a Federal nexus triggered by projects that might affect USACE jurisdictional “waters of the U.S.,” was particularly important in the calculation of costs in Unit 3. Specifically, the DEA assumed that private land development in the City of San Marcos (Northern San Diego County) is likely to have a Federal nexus in three of four (75 percent) of the projects. To the extent that the recent Court rulings described above reduce the amount of proposed CH that would be subject to a Federal nexus, the corresponding economic costs estimates would be reduced proportionately. Given that the private development costs in this unit account for about 70 percent of the total economic impact estimated in the DEA, a change in the Federal nexus assumption could be significant. However, given the high degree of uncertainty associated with actual implementation of the “*Rapanos Decision*”, this Addendum does not quantify its impact.

REGULATORY BASELINE

As described in the DEA, a number of existing regulations and regulatory regimes require agencies and applicants to consider the impacts of their actions or projects on SDFS habitat, and to mitigate those impacts independent of section 7. In other words, in the “world without section 7,” project applicants would be required to protect SDFS habitat under these baseline regulations and costs associated with such mitigation should not be attributed to project modification requirements under section 7.

Chapter III of the DEA describes existing regulations for the SDSF in Orange and San Diego Counties. These regulations include regional HCPs, county and city ordinances and development policies, and local implementation of the CEQA. As part of the Addendum, EPS reviewed each of these regulations and determined that the baseline regulatory framework remains, for the most part, unchanged. However, one new regional HCP that overlaps with a SDFS critical habitat unit has been approved since publication of the DEA. Specifically, Southern Orange County HCP/NCCP, which overlaps Unit 1, has been completed and approved with the permit issued in January 2007.

This Addendum concludes that the approval of the Southern Orange County HCP/NCCP will have a negligible impact on the economic costs estimated in the DEA. This is because the relevant SDFS habitat in this unit is likely to be conserved regardless of critical habitat designation due to pre-existing regulations and dedications. Aside from the potential for an informal, administrative consultation conducted after designation, section 7 costs attributable to critical habitat will be minimal.

ECONOMIC AND DEMOGRAPHIC DATA

The section discusses the implications of updated demographic, market, and other economic data or information that has become available subsequent to publication of the SDFS DEA on the economic costs reported therein.

DEMOGRAPHIC GROWTH PROJECTIONS

Regional economic growth projections published by the Southern California Association of Governments and San Diego Association of Governments have been updated since publication of the DEA. However, the costs calculations in the DEA are not linked to regional or local population or employment forecasts so these updates will not affect the economic impacts estimated therein. Specifically, the DEA cost calculations assume the Service will seek 100 percent avoidance of both vernal pools and uplands. Thus, the economic costs will remain the same regardless of the level of regional growth projected.

MARKET VALUE ASSUMPTIONS

The SDFS DEA relies on a variety of real estate market data sources to estimate the likely economic costs associated with foregone land development due to critical habitat. Given the importance of the market value assumptions in calculating the potential economic impacts of designation, this addendum evaluates the implications of updated data on the economic costs estimates of the SDFS DEA. However, because market values can fluctuate significantly due to business cycle conditions, the information provided herein is intended as a “snapshot” for comparison purposes rather than a reflection of long-term economic relationships.

Table 2 summarizes the change in raw land value in San Diego and Orange counties based on the most up-to-date real estate market data available. As shown, residential values have increased substantially in real terms during this period in both counties, as would be expected based on market trends, while commercial appreciation has been more moderate. The implication of these price trends on the economic impact estimated in the DEA are evaluated in **Table 3**. Overall, the use of these updated market prices would increase economic impacts estimated in the DEA by about \$5.2 million, or by about 10 percent of the total DEA costs for proposed critical habitat (as shown in

Table 2: Change in Land Value; 2002 to 2007 (in 2002 dollars)

Land Use by County	Raw Land Value / Sq. Ft. (in 2002 \$) ¹		2002-07 Growth	
	2002	2007	Amount	%
Residential				
Orange Cnty	\$10.08	\$12.01	\$1.93	16%
San Diego Cnty	\$8.98	\$10.09	\$1.12	11%
Office				
Orange Cnty	\$6.16	\$6.46	\$0.30	5%
San Diego Cnty	\$5.45	\$5.89	\$0.44	7%
Industrial				
Orange Cnty	\$1.18	\$1.23	\$0.05	4%
San Diego Cnty	\$1.30	\$1.41	\$0.11	8%
Retail				
Orange Cnty	\$3.41	\$3.70	\$0.29	8%
San Diego Cnty	\$2.98	\$3.23	\$0.25	8%

(1) See tables B-1 through B-3. All values are expressed in 2002 real dollars.

Sources: Economic & Planning Systems, Inc.

Table 3: Estimated Impact of Updated Market Data on SDFS DEA Estimates

Location / Unit	Affected Acres ¹	Entitled, Raw Land Value / Acre		Cost Impact ³		
		DEA Estimate ¹	Updated ²	DEA Estimate a	Updated b	Increase = b - a
<hr/>						
<i>L.A. Basin/Orange Management Area</i>						
Orange County (Subunit 1C)						
Newport Banning Ranch	24.0	\$700,000	\$812,260	\$8,904,584	\$10,331,720	\$1,427,136
<i>City of Newport Beach (Subunit 1C)</i>						
Newport Banning Ranch	17.0	\$700,000	\$812,260	\$6,307,414	\$7,318,302	\$1,010,888
<i>SD Inland Valley Management Area</i>						
City of San Marcos (Subunits 3A - D)	123.0	\$740,000	\$796,645	\$37,114,948	\$39,905,047	\$2,790,099
Total	164					\$5,228,122

(1) See SDFS DEA Table 6

(2) See Table 2 and Appendix B for supporting data and calculations.

(3) Represents the net present value of future foregone development assuming a 7% discount rate.

DEA Appendix **Table A-1**, the DEA estimated total economic costs at approximately \$53 million). Again, this estimate represents a snapshot based on the most current market conditions for which data is available, a period marked by a relatively robust residential real estate market.

AIRPORT EXPANSION

At the time of the publication of the DEA, the County of San Diego was involved with the FAA in the development of a new airport to serve the larger San Diego Metropolitan Area. At that time, four out of the ten potential sites being considered, including Otay Mesa, Ramona, MCB Camp Pendleton, and MCAS Miramar, contained SDFS vernal pool habitat (two of these sites are located in areas proposed for exclusion). The SDFS estimated the total potential cost attributable to section 7 by multiplying the potential restoration costs at each site that would be needed to accommodate an airport by the probability that a particular site would be chosen. The discounted net present value of these costs was estimated to be about \$325,000 for the land proposed for final designation.

On November 7, 2006, subsequent to publication of the DEA, the voters of San Diego County rejected a State-mandated Airport Site Selection ballot initiative which would have authorized the Airport Authority to precede with their relocation plans. Because of voter rejection of this initiative, the airport is expected to remain at its current location at Lindbergh Field for the foreseeable future. Consequently, the potential economic cost of relocation as calculated in the DEA is not longer applicable, reducing the estimated impact of CHD by about \$325,000.

OTHER ECONOMIC ASSUMPTIONS

In addition to demographic, employment, and real estate data, the DEA relies on a number of other economic assumptions to estimate the costs of CHD. For example, the habitat restoration costs include assumptions about the cost of grading and salaries for staff biologists. In addition, the administrative costs include assumptions about labor costs for both public and private personnel. These costs may have increased slightly since publication of the DEA due to real increases in wages, materials, and supplies. However, given that DEA estimates are expressed in real rather than nominal dollars, and that these inputs represents a relatively minor component of the overall impact, any changes in these assumptions are likely to be relatively minor and not estimated herein.

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APPENDIX A

Table A-1
San Diego Fairy Shrimp Critical Habitat Draft Economic Analysis
Economic Impact Summary by Activity, Land Type, and Region [1]

	Total Impacts of the Rule			TOTAL, ALL LANDS
Region / Land Use Activity	Type I Lands	Type II Lands	Type III Lands	
L.A. Basin/Orange Management Area				
Private land development	\$15,211,998	-	-	\$15,211,998
Other [2]	\$4,136	-	-	\$4,136
Subtotal	\$15,216,134	-	-	\$15,216,134
SD North Coastal Mesa Management Area				
Military activities	-	-	\$14,779	\$14,779
Airport Construction [3]	-	-	\$781,057	\$781,057
Water projects	\$369	-	\$3,326	\$3,695
Other [2]	\$10,050	-	-	\$10,050
Subtotal	\$10,419	-	\$799,161	\$809,580
SD Inland Valley Management Area				
Private land development	\$37,114,948	-	-	\$37,114,948
Airport Construction [3]	\$309,623	-	-	\$309,623
Water projects	\$3,695	-	-	\$3,695
Other [2]	\$34,476	-	-	\$34,476
Subtotal	\$37,462,742	-	-	\$37,462,742
SD Central Coastal Mesa Management Area				
Private land development	\$795	-	-	\$795
Military activities	-	\$133,008	-	\$133,008
Airport Construction [3]	-	\$81,852	-	\$81,852
Water projects	\$185	\$3,510	-	\$3,695
Other [2]	\$2,049	\$38,979	-	\$41,028
Subtotal	\$3,028	\$257,349	-	\$260,377
SD Southern Coastal Mesa Management Area				
Private land development	\$106,619	\$49,378	-	\$155,997
Airport Construction [3]	\$14,861	\$24,615	-	\$39,476
Road Construction	\$208,624	\$345,549	-	\$554,173
Military activities	-	\$7,734	-	\$7,734
Water projects	\$1,391	\$2,304	-	\$3,695
Other [2]	\$18,715	\$30,999	-	\$49,714
Subtotal	\$350,210	\$460,578	-	\$810,788
TOTAL, All Regions	\$53,042,532	\$717,927	\$799,161	\$54,559,621
Annualized Cost, All Regions [4]	\$5,010,000	\$70,000	\$80,000	\$5,150,000

Notes:

- [1] The time horizon analyzed is the next 20 years. All amounts are expressed as present value sums, based on an assumption that land use activities are equally likely to occur over each of the next 20 years. Discounting uses a 7% public investment rate.
- [2] Includes CEQA costs associated with essential habitat mapping. CEQA costs could affect public or private projects sited in any essential habitat region, so the two-county total impact is spread equally over all acres of essential habitat.
- [3] The airport may be located in any one of four locations with vernal pool habitat. Impacts are weighted by the probability that one of these four sites is selected.
- [4] Discounted present value costs are annuitized at a 7% rate.

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APPENDIX B

Table B-1
Residential Land Value Calculations by County 2007
Addendum to SDFS DEA; EPS #17077

Measure	Orange	San Diego
Average Home Sales Price ⁽¹⁾	\$685,637	\$557,125
<u>Housing Acreage Distribution ⁽²⁾</u>		
Single Family, Detached	69,413	75,135
Single Family, Attached	10,918	8,840
Multi-Family, 2-4 Units	5,835	5,036
Multi-Family, 5+ Units	<u>12,584</u>	<u>15,106</u>
Total	98,750	104,117
Units / Gross Ac. (Weighted Avg.) ^[3]	9.46	9.53
Market Value per Gross Acre	\$6,486,850	\$5,308,189
Residual Value per Vacant Gross Ac. ⁽⁴⁾	\$648,685	\$530,819
Residual Value per Vacant GSF	\$14.89	\$12.19
Consumer Price Index (2002-2007)	19%	17%
Residual Land Value (2002 \$)	\$12.01	\$10.09

(1) From Table B-4

(2) Calculated by multiplying the number of housing units of each type in 2000 (DOF Table E-5a)

by the following assumed unit-per-acre estimates:

single family detached:	7
multi-family (2-4 units):	15
multi-family (5+ units):	20

(3) Average of unit-per-acre assumptions in footnote (2), weighted by housing acreage distribution.

(4) Assumes value of vacant land zoned for development (but otherwise unentitled) is 10% percent of total market value.

Sources: Bureau of Labor Statistics, Economic & Planning Systems, Inc.

Table B-2
Office and Industrial Land Value Calculations by County 2007
Addendum to SDFS DEA; EPS #17077

Measure	Orange	San Diego
<u>Office</u>		
Sales Price (\$/Leasable SqFt) ⁽¹⁾	\$286	\$254
Parcel Price per Net SqFt ⁽²⁾	\$100	\$89
Parcel Price per Gross SqFt ⁽³⁾	\$80	\$71
Market Value per Gross Acre	\$3,488,285	\$3,095,044
Residual Value per Vacant Gross Ac. ⁽⁴⁾	\$348,828	\$309,504
Residual Value per Vacant GSF	\$8.01	\$7.11
Consumer Price Index (2002-2007)	19%	17%
Residual Land Value (2002 \$)	\$6.46	\$5.89
<u>Industrial</u>		
Sales Price (\$/Leasable SqFt) ⁽¹⁾	\$76.03	\$85.12
Parcel Price per Net SqFt ⁽⁵⁾	\$19.01	\$21.28
Parcel Price per Gross SqFt ⁽³⁾	\$15.21	\$17.02
Market Value per Gross Acre	\$662,412	\$741,557
Residual Value per Vacant Gross Ac. ⁽⁴⁾	\$66,241	\$74,156
Residual Value per Vacant GSF	\$1.52	\$1.70
Consumer Price Index (2002-2007)	19%	17%
Residual Land Value (2002 \$)	\$1.23	\$1.41

(1) From Table B-5

(2) Assumes floor area ratio (FAR) of 0.35 for office space.

(3) Assumes net-to-gross ratio of 0.80 to account for associated infrastructure (roads, sidewalks, etc.).

(4) Assumes value of vacant land zoned for development (but otherwise unentitled) is 10% of total market value.

(5) Assumes floor area ratio (FAR) of 0.25 for industrial space.

Source: Bureau of Labor Statistics, Economic & Planning Systems, Inc.

Table B-3
Retail Land Value Calculations by County 2007
Addendum to SDFS DEA; EPS #17077

Measure	Orange	San Diego
Sales Price (\$/Leasable SqFt) ⁽¹⁾	\$191	\$162
Parcel Price per Net SqFt ⁽²⁾	\$57	\$49
Parcel Price per Gross SqFt ⁽³⁾	\$46	\$39
Market Value per Gross Acre	\$1,998,029	\$1,696,268
Residual Value per Vacant Gross Ac. ⁽⁴⁾	\$199,803	\$169,627
Residual Value per Vacant GSF	\$4.59	\$3.89
Consumer Price Index (2002-2007)	19%	17%
Residual Land Value (2002 \$)	\$3.70	\$3.23

(1) From Table C-6

(2) Assumes floor area ratio (FAR) of 0.3 for office space.

(3) Assumes net-to-gross ratio of 0.80 to account for associated infrastructure (roads, sidewalks, etc.).

(4) Assumes value of vacant land zoned for development (but otherwise unentitled) is 10% of total market value.

Source: Bureau of Labor Statistics, Economic & Planning Systems, Inc.

Table B-4
Historical Median Residential Sales Prices in Southern California Counties
Addendum to SDFS DEA; EPS #17077

County	Median Sales Price						Average Median Sales Price (2002-2007)	% Change 2002-2007
	2002	2003	2004	2005	2006	1st Quarter 2007		
Orange County	\$352,833	\$416,583	\$520,083	\$591,167	\$626,000	\$619,500	\$521,028	48%
San Diego County	\$322,000	\$377,000	\$457,167	\$493,833	\$489,500	\$483,000	\$437,083	36%

Sources: Dataquick.com, Economic & Planning Systems, Inc.

Table B-5
Office and Industrial Lease Rates per Square Foot
Addendum to SDFS DEA; EPS #17077

County	Office Lease Rate per Sq. Ft.		% Change 2002-2007	Industrial Lease Rate per Sq. Ft.		% Change 2002-2007
	2002	2nd Quarter 2007		2002	2nd Quarter 2007	
Orange County	\$2.10	\$2.73	30%	\$0.58	\$0.75	29%
San Diego County	\$1.81	\$2.36	30%	\$0.84	\$1.10	31%

Sources: CBRE market view reports 2nd quarter 2002 and 2007, Economic & Planning Systems, Inc.

Table B-6
Retail Lease Rates by County
Addendum to SDFS DEA; EPS #17077

County/ Region	Retail Lease Rates (\$/SqFt/Yr)		% Change 2002-2007
	2002	2007	
Orange	\$21	\$28	35%
San Diego	\$20	\$26	31%

Source: Marcus and Millichap Retail Research Report, 2Q 2007 and Nov. 2002